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Cancer Research Center

پوستر

Applications of High Intensity Focused Ultrasound in treatment of cancer

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HIFU (high intensity focused ultrasound) has been successfully applied in treatment of cancer to destroy solid tumors of the bone, brain, breast and liver. HIFU is a highly precise medical procedure using high-intensity focused to heat and destroys pathogenic tissue rapidly. It is often considered a promising technology within the non-invasive or minimally invasive therapy segments of medical technology. HIFU's capacity to generate in-depth precise tissue necrosis using an external applicator, with no effect on the surrounding structures, is unique. it is one modality of therapeutic ultrasound, and although it induces hyperthermia it should not be confused with this technique which heats much less rapidly and to much lower therapeutic temperatures (generally < 45°C). This is typically under computerized MRI guidance, when it is sometimes called Magnetic Resonance guided Focused Ultrasound, often shortened to MRgFUS. Magnetic resonance imaging (MRI) is used to identify tumors or fibroids in the body, before they are destroyed by the ultrasound. Therapeutic ultrasound is a minimally invasive or non-invasive method to deposit acoustic energy into tissue. Applications include tissue ablation (HIFU) (for tumor treatments, for example), hyperthermia treatments (low-level heating combined with radiation or chemotherapy), or the activation or enhanced delivery of drugs. In this paper we explain to comprehensive applications of HIFU in medicine and treatment of cancer.